



## **WATER RESOURCES RESEARCH GRANT PROPOSAL**

**Title:** Development of a Systematic Approach for Channel Restoration Activities

**Duration:** 9/1/97 to 1/31/99

**Federal Funds Requested:** \$32,970

**Non-Federal Funds Pledged:** \$66,541

**Principal Investigator:** Glenn E. Moglen, University of Maryland

**Congressional District:** 5th District of Maryland

### **Statement of critical regional or State water problems:**

Channel restoration activities are becoming increasingly common within the State of Maryland. As the impacts of man's development of the landscape worsen and our recognition of the environmental damage caused by these land use changes becomes clearer, there has developed the need for effective engineering efforts to mitigate these damages. Early efforts to restore channels have met with mixed to poor results. Hundreds of thousands of dollars have been spent at some sites only to have the newly renovated system severely eroded by only moderate flooding.

Research in this area will be of tremendous value to state and local governments and agencies. These are the organizations which are being called upon by residents and environmental groups to plan for and restore damaged streams. Currently, municipalities are being forced to respond to these demands for restoration with little or no prior knowledge or experience in designing and executing such projects. Many restoration sites reflect these shortcomings and the need for a systematic and effective approach to perform channel restoration is clearly warranted.

### **Statement of results or benefits:**

This research will develop an approach employing both readily available digital data and field observations to quantify stable channel geometry as a function of observable watershed characteristics. Additionally, a cost function will be developed to quantify the severity of the impacts to the channel in question. The results could be used by the engineer to provide guidance concerning the design of an effective channel restoration project, and by the planner to estimate project costs and prioritize restoration efforts at multiple potential restoration sites. We will also show how to optimally allocate limited funding resources across these multiple sites according to various fund distribution strategies.

The project outlined here will have two components. The first part will entail carrying out the research described above. The second part will be dissemination of the findings of this research. We envision creating a site on the world wide web which will evolve over the course of the project. Initially, this site will present the project scope and objectives. As information is gathered and results are developed, the web site will be revised to reflect this progress. Ultimately we hope to develop an interactive set of web pages to allow visitors to download data sets, software, and even generate design estimates for a channel restoration project they may be involved with. At all times visitors will be able to contact the PI via this page for additional information and to provide feedback.